

## SEQUENCE LISTING

<110> Vega MASIIGNANI

<120> ADP-RIBOSYLATING TOXIN FROM LISTERIA MONOCYTOGENES

<130> PP020009.0003

<140> PCT/IB2004/001440

<141> 2004-04-08

<150> GB0308198.1

<151> 2003-04-09

<160> 29

<170> SeqWin99, version 1.02

<210> 1

<211> 604

<212> PRT

<213> Listeria monocytogenes

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Ala Leu Ala Pro Phe Ala Ala Ala Asn Trp Val Gly Gly Leu Phe Asn  
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Asn Leu Glu Lys Val Ser Lys Asn Met Glu Glu Ala Glu Glu Asp Val  
35 40 45

Gln Glu Leu Asp Ser Asp His Ala Ile Ser Phe Gln His Thr Asn Tyr  
50 55 60

Arg Gly Lys Tyr Ser Ala Ile Glu Asp Asp Leu Met Val Leu Tyr Lys  
65 70 75 80

Phe Ser Cys His Ala Gly Glu Lys Met Glu Thr Leu Val Asp Gln Pro  
85 90 95

Phe Tyr Glu Lys Leu Asp Ala Phe Val Asp Gly Met Gln Asp Leu Ser  
100 105 110

Ile Ser Thr Tyr Ser Thr Thr Asn Arg Ile Gly Ala Lys Ser Lys Gln  
115 120 125

Thr Tyr Thr Thr Thr Ser Gly Gly Ser Gln Val Ile Glu Ser Ile Lys  
130 135 140

Glu Gly Ala Thr Ile Glu Asp Leu Met Asn Gly Asp Asn Phe Tyr Ala  
145 150 155 160

Asn Gln Met Gln Leu Gln Tyr Arg Asp Trp Gln Arg Ala Asn Pro Asp  
165 170 175

Gln Asp Val Ser Lys Lys Asp Phe Gln Met Gly Met Leu His Ser Arg  
180 185 190

Ala Phe Glu Tyr Lys Ser Ile Lys Asp Glu Gln Gln Glu Lys Glu Phe  
195 200 205

Trp Val Asn Ile Val Ala Thr Val Val Ile Val Gly Val Ser Ile Phe  
 210 215 220  
 Cys Pro Pro Ala Gly Leu Ala Leu Ala Val Gly Tyr Gly Ser Leu Glu  
 225 230 235 240  
 Ala Gly Ser Ala Ile Ser Gly Lys Asp Trp Val Ser Gly Arg Glu Leu  
 245 250 255  
 Ser Thr Glu Glu Arg Ala Leu Arg Gly Gly Leu Ala Leu Leu Asp Ile  
 260 265 270  
 Val Pro Gly Val Lys Ala Leu Ser Thr Gly Ala Lys Ala Ala Ser Ala  
 275 280 285  
 Gly Ser Lys Leu Val Arg Val Gly Asp Asn Val Leu Ala Gly Ser Lys  
 290 295 300  
 Asn Val Gly Lys Gly Thr Ile Asp Asn Gly Ile Gln Ala Gly Lys Gln  
 305 310 315 320  
 Ala Met Asp Leu Arg Leu Ala Asn Ala Lys Lys Val Ser Glu Ala Val  
 325 330 335  
 Gln Lys Lys Leu Thr Lys Asp Leu Asp Asp Ile Gly Thr Met Ala Lys  
 340 345 350  
 Thr Ile Gln Asn Lys Thr Lys Glu Thr Phe Thr Leu Pro Pro Arg Glu  
 355 360 365  
 Gln Leu Ala Phe Ala Arg Gly Gly Ser Ile Pro Glu Gln Ser Ala Thr  
 370 375 380  
 Gly Ala Ala Ala Ile Ala Ala Lys Lys Lys Leu Lys Asp Ile Met Gln  
 385 390 395 400  
 Asn Met Asp Asn Leu Asn Val Lys Gly Gly Gly Lys Asp Asp Ile Ile  
 405 410 415  
 Glu Gln Asn Lys Ser Leu Lys Phe Thr Ser Leu Glu Glu Ser Glu Lys  
 420 425 430  
 Trp Gly Ile Asp Gly Phe Ser Val Trp Arg Asn Ser Leu Ser Ser Arg  
 435 440 445  
 Glu Ile Gln Ala Ile Arg Asp Tyr Thr Asp Ile Trp His Tyr Gly Asn  
 450 455 460  
 Met Asn Gly Tyr Leu Arg Gly Ser Val Glu Lys Leu Ala Pro Asp Asn  
 465 470 475 480  
 Ala Glu Arg Ile Lys Asn Leu Ser Ser Ala Leu Glu Lys Ala Glu Leu  
 485 490 495  
 Pro Asp Asn Ile Ile Leu Tyr Arg Gly Thr Ser Ser Glu Ile Leu Asp  
 500 505 510  
 Asn Phe Leu Asp Leu Lys Asn Leu Asn Tyr Gln Asn Leu Val Gly Lys  
 515 520 525  
 Thr Ile Glu Glu Lys Gly Phe Met Ser Thr Thr Thr Ile Ser Asn Gln  
 530 535 540

Thr Phe Ser Gly Asn Val Thr Met Lys Ile Asn Ala Pro Lys Gly Ser  
 545 550 555 560

Lys Gly Ala Tyr Leu Ala His Phe Ser Glu Thr Pro Glu Glu Ala Glu  
 565 570 575

Val Leu Phe Asn Ile Gly Gln Lys Met Leu Ile Lys Glu Val Thr Glu  
 580 585 590

Leu Asn Gly Lys Ile Glu Ile Ile Val Asp Leu Leu  
 595 600

<210> 2  
 <211> 1815  
 <212> DNA  
 <213> *Listeria monocytogenes*

<400> 2  
 atgaaagaag tcaactaccg agaagacgac tggcgtgaag ccaaaagtgc cctcgctcca 60  
 tttgccgcag cgaattgggt aggcgggttta ttcaataatt tagaaaaagt atcgaaaaat 120  
 atggaagaag cggaagaaga tgtccaagag ttggactcag accacgcgat ttcgtttcaa 180  
 cacaccaact atcgcgggaa gtacagcgct atcgaagacg atttgatggt attgtataag 240  
 tttagtgtgc atgcagggga aaagatggaa accctggtag accaaccggt ctatgagaag 300  
 ttagacgcgt ttgtggatgg catgcaagat ttgagtattt cgacgtattc taccaccaac 360  
 cggattgggtg cgaagtcgaa acaaacctat acaactacat ctggcgggttc gcaagtcatc 420  
 gagtccatca aagaaggtgc gacgatcgaa gatttgatga atggcgataa cttctacgca 480  
 aaccaaatgc aactacaata cagggactgg caacgagcga atccagatca agatgtgagt 540  
 aagaaagact ttcaaatggg aatgtttacat agtcggggcat ttgaatataa atcaattaaa 600  
 gatgaacaac aagagaaaga attttgggtc aacatttggtg caaccgtggt gattgtggga 660  
 gtcagtattt tctgcccacc cgccggcctt gccttagccg taggatacgg gagtttagaa 720  
 gctggttcgg caatcagtgg gaaggactgg gtatctggcc gtgaactaag tacagaagaa 780  
 cgagcgcttc gtggcggttt agcactgcta gatatcgttc caggtgtgaa agcattgagc 840  
 acaggagcga aagctgccag tgccggctcg aaacttgtcc gcgtaggcga taatgtttta 900  
 gcaggtagca agaacgtcgg caaaggaacc atcgacaatg gcattcaagc aggaaaacaa 960  
 gcgatggatc tccgggttagc caatgcgaaa aaagtcagcg aagctgtcca aaagaaactc 1020  
 accaaagacc ttgacgatat cggcacgatg gccaaaacca tccaaaacaa aaccaaagaa 1080  
 accttcacac ttccaccgag agagcaactc gcctttgcga gaggaggcag tattccggaa 1140  
 caaagcgcca ccggagccgc cgcgatagcc gcgaagaaaa agctgaaaga tattatgcag 1200  
 aacatggata atttgaatgt gaagggcggc gagaaatggg gaattgatgg tttttcagta 1260  
 agccttaagt ttactttcatt agaggaatcc gagaaatggg gaattgatgg tttttcagta 1320  
 tggagaaact ctttatcttc tcgtgaaatc caagctatta gggactatac agacatttgg 1380  
 cattatggaa atatgaatgg ttatttaaga ggaagtgtcg aaaaacttgc cccagataat 1440  
 gcagaaagaa ttaagaatct aagcagtgtc ttggaaaaag cagagttacc tgataatata 1500  
 attttatata gaggaactag ttctgaaata ttggataact ttcttgattt aaagaattta 1560  
 aattaccaa atttagttgg gaaaacaatt gaagaaaaag gatttatgag tacaactacc 1620  
 ataagtaac aaacgttctc aggaaacgtt acaatgaaaa tcaacgctcc taaaggtagc 1680  
 aaaggtgcat atctagctca ttttagtgaa acacctgaag aagcagaggt attgtttaat 1740  
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<210> 3  
 <211> 309  
 <212> PRT  
 <213> *Listeria innocua*

<400> 3  
 Met Lys Glu Val Asn Tyr Arg Glu Asp Asp Trp Arg Glu Ala Lys Ser  
 1 5 10 15  
 Ala Leu Ala Pro Phe Ala Ala Ala Asn Trp Val Gly Gly Leu Phe Asn  
 20 25 30

Asn Leu Glu Lys Val Ser Lys Asn Met Glu Glu Ala Glu Glu Asp Ile  
 35 40 45  
 Gln Glu Leu Asp Ser Asp Arg Ala Ile Ser Phe Gln His Thr Asn Tyr  
 50 55 60  
 Arg Gly Lys Tyr Ser Ala Ile Glu Asp Asp Leu Met Val Leu Tyr Lys  
 65 70 75 80  
 Phe Ser Cys His Ala Gly Glu Lys Met Glu Thr Leu Val Asp Gln Pro  
 85 90 95  
 Phe Tyr Glu Lys Leu Asp Ala Phe Val Asp Gly Met Gln Asp Leu Ser  
 100 105 110  
 Ile Ser Thr Tyr Ser Thr Thr Asn Arg Ile Gly Ala Lys Ser Lys Gln  
 115 120 125  
 Thr Tyr Met Ser Ser Tyr Gly Asn Gln Pro Gln Val Ile Glu Ser Val  
 130 135 140  
 Lys Asp Asn Ala Thr Ile Glu Asp Leu Leu Asn Gly Asp Asn Phe Tyr  
 145 150 155 160  
 Ala Asn Gln Met Gln Leu Gln Tyr Arg Asp Trp Gln Arg Ala Asn Pro  
 165 170 175  
 Asn Gln Asp Val Ser Lys Lys Asp Phe Gln Met Gly Met Leu His Ser  
 180 185 190  
 Arg Val Phe Glu Tyr Lys Ser Ile Lys Asp Glu Gln Gln Glu Lys Glu  
 195 200 205  
 Phe Trp Val Asn Ile Val Ala Thr Val Val Ile Val Gly Val Ser Ile  
 210 215 220  
 Phe Cys Pro Pro Ala Gly Leu Ala Leu Ala Val Gly Tyr Gly Ser Leu  
 225 230 235 240  
 Glu Ala Gly Ser Ala Ile Ser Gly Lys Asp Trp Val Ser Gly Arg Glu  
 245 250 255  
 Leu Ser Thr Glu Glu Arg Ala Leu Arg Gly Gly Leu Ala Leu Leu Asp  
 260 265 270  
 Ile Val Pro Gly Val Lys Ala Leu Ser Thr Gly Ala Lys Ala Ala Ser  
 275 280 285  
 Ala Gly Ser Lys Leu Val Arg Val Gly Asp Asn Ile Leu Val Gly Ser  
 290 295 300

Lys Asn Val Gly Lys  
 305

<210> 4  
 <211> 11  
 <212> PRT  
 <213> Escherichia coli

<400> 4  
 Lys Leu Tyr Arg Ala Asp Ser Arg Pro Pro Asp  
 1 5 10

<210> 5  
 <211> 9  
 <212> PRT  
 <213> Escherichia coli

<400> 5  
 Leu Tyr Asp His Ala Arg Gly Thr Gln  
 1 5

<210> 6  
 <211> 15  
 <212> PRT  
 <213> Escherichia coli

<400> 6  
 Tyr Asp Asp Gly Tyr Val Ser Thr Ser Leu Ser Leu Arg Ser Ala  
 1 5 10 15

<210> 7  
 <211> 15  
 <212> PRT  
 <213> Escherichia coli

<400> 7  
 Ser Pro His Pro Tyr Glu Gln Glu Val Ser Ala Leu Gly Gly Ile  
 1 5 10 15

<210> 8  
 <211> 11  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 8  
 Phe Leu Tyr Arg Gly Ile Ser Cys Gln Gln Asp  
 1 5 10

<210> 9  
 <211> 9  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 9  
 Val Tyr Ala His Gln Ile Glu Thr Gly  
 1 5

<210> 10  
 <211> 15  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 10  
 Tyr Asp Gly Cys Tyr Ile Ser Thr Thr Thr Asp Lys Glu Ile Ala  
 1 5 10 15

<210> 11  
 <211> 15  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 11  
 Pro Glu Asn Pro Asn Glu Lys Glu Val Thr Ile Arg Ala Glu Asp  
 1 5 10 15

<210> 12  
 <211> 52  
 <212> PRT  
 <213> Streptomyces coelicolor

<400> 12  
 Thr Leu Tyr Arg Ser Asp Ser Arg Gly Pro Gln Val Val Phe Glu Glu  
 1 5 10 15  
 Gly Phe His Ala Lys Asp Val Gln Asn Gly Gln Tyr Asp Val Glu Lys  
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 Tyr Val Leu Val Asn Gln Pro Ser Pro Tyr Val Ser Thr Ser Tyr Asp  
 35 40 45  
 His Asp Leu Tyr  
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<210> 13  
 <211> 15  
 <212> PRT  
 <213> Streptomyces coelicolor

<400> 13  
 His Lys Trp Ala Asp Gln Val Glu Val Ala Phe Pro Gly Gly Ile  
 1 5 10 15

<210> 14  
 <211> 11  
 <212> PRT  
 <213> Mycoplasma pneumoniae

<400> 14  
 Phe Val Tyr Arg Val Asp Leu Arg Ser Pro Glu  
 1 5 10

<210> 15  
 <211> 9  
 <212> PRT  
 <213> Mycoplasma pneumoniae

<400> 15  
 Phe Phe Glu His Ile Leu Ser Thr Asn  
 1 5

<210> 16  
 <211> 15  
 <212> PRT  
 <213> Mycoplasma pneumoniae

<400> 16  
 Gly Arg Ser Tyr Phe Ile Ser Thr Ser Glu Thr Pro Thr Ala Ala  
 1 5 10 15

<210> 17  
 <211> 15  
 <212> PRT  
 <213> Mycoplasma pneumoniae

<400> 17  
 Thr Ser Phe Ala Tyr Gln Arg Glu Trp Phe Thr Asp Gly Pro Ile  
 1 5 10 15

<210> 18  
 <211> 11  
 <212> PRT  
 <213> Salmonella typhi

<400> 18  
 Phe Val Tyr Arg Val Asp Ser Thr Pro Pro Asp  
 1 5 10

<210> 19  
 <211> 15  
 <212> PRT  
 <213> Salmonella typhi

<400> 19  
 Ser Cys Ser Gly Gly Ser Ser Asp Ser Arg Tyr Ile Ala Thr Thr  
 1 5 10 15

<210> 20  
 <211> 15  
 <212> PRT  
 <213> Salmonella typhi

<400> 20  
 Thr Met Met Arg Leu Gln Arg Glu Tyr Val Ser Thr Leu Ser Ile  
 1 5 10 15

<210> 21  
 <211> 11  
 <212> PRT  
 <213> Salmonella paratyphi

<400> 21  
 Phe Val Tyr Arg Val Asp Ser Thr Pro Pro Asp  
 1 5 10

<210> 22  
 <211> 15  
 <212> PRT  
 <213> Salmonella paratyphi

<400> 22  
 Ser Cys Ser Gly Gly Ser Ser Asp Ser Arg Tyr Ile Ala Thr Thr  
 1 5 10 15

<210> 23  
 <211> 15  
 <212> PRT  
 <213> Salmonella paratyphi

<400> 23  
 Thr Met Met Arg Leu Gln Arg Glu Tyr Val Ser Thr Leu Ser Ile  
 1 5 10 15

<210> 24  
 <211> 11  
 <212> PRT  
 <213> Streptococcus pyogenes

<400> 24  
 Val Val Tyr Arg Tyr Val Tyr Glu Thr Phe Leu  
 1 5 10

<210> 25  
 <211> 15  
 <212> PRT  
 <213> Streptococcus pyogenes

<400> 25  
 Thr Lys His Ser Phe Met Ser Thr Thr Ala Leu Lys Asn Gly Ala  
 1 5 10 15

<210> 26  
 <211> 15  
 <212> PRT  
 <213> Streptococcus pyogenes

<400> 26  
 Ser Ala Val Pro Ser Glu Val Glu Leu Leu Phe Pro Arg Gly Cys  
 1 5 10 15

<210> 27  
 <211> 11  
 <212> PRT  
 <213> Listeria monocytogenes

<400> 27  
 Ile Leu Tyr Arg Gly Thr Ser Ser Glu Ile Leu  
 1 5 10

<210> 28  
 <211> 15  
 <212> PRT  
 <213> Listeria monocytogenes

<400> 28  
 Glu Glu Lys Gly Phe Met Ser Thr Thr Thr Ile Ser Asn Gln Thr  
 1 5 10 15

<210> 29  
 <211> 15  
 <212> PRT  
 <213> Listeria monocytogenes

<400> 29  
 Ser Glu Thr Pro Glu Glu Ala Glu Val Leu Phe Asn Ile Gly Gln  
 1 5 10 15